

THURSDAY, OCTOBER 2, 1873

ON MEDICAL STUDIES

AS at the present time so many students have just assembled at the medical schools in London and the provinces to commence or continue their medical education, we think that notwithstanding the advice so freely given them in all directions by their friends, and especially by those who deliver the introductory addresses at the different hospitals, there are some few points to which their attention cannot be too frequently directed.

First, with regard to the range of subjects which is required by the higher examining boards, such as the University of London, in the earlier stages of the medical curriculum. There cannot be the least doubt, though several who have not participated in its advantages are fond of expressing an opinion to the contrary, that the wider and more extended the field of study that can be grasped by a student at the outset, the more chance he has of ultimate success; and he who has no higher object in view than that of passing the least difficult of the necessary examinations which give him a licence to practise, must ultimately find himself far behind in the race. In surgery, no doubt, there are a few who, without much scientific knowledge, have attained great eminence as operators, on account of their manual dexterity; but this position ought not to be the aspiration of the commencing student, as the reputation is generally of short duration, and is not much higher than that of a man who has rowed in a winning University boat-race.

One great argument in favour of a liberal medical education is that the mental capacities of the young men who commence it are very different; and if those who are the most gifted have but little chance of acquiring a knowledge of the facts and theories of Science, as they stand at the time at which they study, they are placed in a position of disadvantage for future research, and find it always difficult to make up for lost time. When all have to start on the extended course, which includes a knowledge of physics, botany, pure physiology, and chemistry, those who have the capacity for higher work in Science obtain an opportunity of developing their tendencies, and are often led to give up their original design of being medical practitioners, to become specialists in their favourite subjects, and an honour to Natural and Medical Science. This means of selecting the best men for scientific work would be a sufficient result in itself to justify the primary education of all medical students in the pure sciences that relate indirectly to medicine; for it must be remembered by those who hold the contrary opinion, that it is to its scientific supporters that the medical profession owes most of its dignity. If we look at the names of those who stand highest in the profession at the present day, it is readily seen that nearly all have their reputation based on a thorough scientific foundation. The lowering of the scientific standard would, therefore, undoubtedly lower the status of the profession amongst society at large, and it will be generally acknowledged that such a result is anything but desirable.

The recent thorough working out of the cause of the outbreak of typhoid fever in the west end of London this

summer, shows how satisfactory are the results which follow the employment of a rigorous scientific method of observation. How long it would have remained undiscovered that the impurities in the milk-supply of a locality are the not unfrequent cause of an outbreak of typhoid fever it is impossible to say, if the subject had not been entered upon and carried through in a manner which does great credit to those who detected its origin, as Dr. Ballard had done on a former occasion in Islington.

A second point worthy of attention is the social position of the medical student. That he generally does not compare favourably with the undergraduates of Oxford and Cambridge is certain; but why this is the case does not seem to be so definitely settled. One of the great reasons is that the medical education does not include anything but the mental training: and although the medical student is like the average University undergraduate so far as age, preliminary education, and object of life are concerned, nevertheless after a curriculum of three years or more, the latter has made more progress as a social individual. The different natures of their studies cannot be proved to have anything to do with the difference in the results, and nearly all may be traced to the systems in which each participates. The University undergraduate is subject to two independent influences for good. A fixed code of University and College rules restrains him in many directions, as with regard to his conduct and the allotment of his time; at the same time that a much more stringent, but not written code, the result of his necessarily intimate relations with a large number of companions of his own age, regulates the details of his actions continually, the infringement of which code removes him from his most pleasurable source of enjoyment during leisure hours. Most medical students miss both of these. The absence of a Proctorial system and College rules makes him free to his heart's content; and the comparative smallness, as a rule, of the clique to which he belongs, helps to encourage rather than remove objectionable individual peculiarities, which would not be tolerated in general society. It is excessive freedom which is the bane of the young medical student, and the introduction of any system which provided a reasonable amount of restraint during the medical education would undoubtedly improve the social status of its undergraduates. Attempts have been made, but on too small a scale to be really successful. If the leading schools could be persuaded to invest money in building suitable apartments for their pupils, and spend part of the profits which must necessarily accrue to them, in giving scholarships, open only to those who resided in such buildings, a system might be developed which, after some time, from the convincing evidence it would give of its advantages, would cause all to participate in it.

Until there is much more co-operative feeling among the different schools in London, it is difficult to conceive how this or any other really marked improvement can be effected. Whilst things stand as they do, we are convinced that, in the long run, those will enjoy the most profitable student-ship, and afterwards find themselves in the most advantageous position, who put themselves under reasonable restraint, and endeavour to extend their circle of acquaintance beyond the few sympathising "chums," who generally have but little influence for good, at the

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same time that they often, by an unconscious process of approval and persuasion, help to exaggerate bad qualities and develop worse.

LYELL'S "ANTIQUITY OF MAN"

The Geological Evidences of the Antiquity of Man, with an Outline of Glacial and Post Tertiary Geology, and Remarks on the Origin of Species, with special reference to Man's First Appearance on the Earth. By Sir Charles Lyell, Bart., M.A., F.R.S. Fourth Edition Revised. Illustrated with Woodcuts. (London: John Murray, 1873.)

SINCE the first volume of "The Principles of Geology" appeared—now more than forty-three years ago—Sir Charles Lyell has put forth an uninterrupted series of new works or new editions, and we have now arrived at the 11th edition of the "Principles," the 7th of the "Elements of Geology," and the 4th of the "Antiquity of Man." A most striking feature of these works is, that they give the fullest and most accurate scientific details, and the most philosophical discussion of principles and results, without for a single page ceasing to be interesting to any well educated and thoughtful man. Perhaps no author has attained in so perfect a degree the art of making science popular without ever attempting to popularise it, or has produced a series of works which are equally acceptable to the experienced geologist and to the general reader.

The present edition of the well-known "Antiquity of Man" will fully sustain the author's high reputation, since it is not a mere corrected reprint of former editions, but, in several important respects, a new work, embodying all the most recent discoveries and researches on the various subjects of which it treats, while several discussions of temporary or personal interest have been omitted. Almost every chapter contains either important new facts or new results derived from a more careful study of old ones; while some are almost wholly rewritten, as, for example, chap. xii., in which the most recent researches on the climate of the Crag period is very fully given; and it would need a very acute critic to discover in these any lack of that lucidity of arrangement and vigour of thought which have always distinguished Sir Charles Lyell's writings.

The most striking additional facts bearing directly on the Antiquity of Man are so well known and have been so often before the public, that it is unnecessary to enumerate them here; but it may be advisable to remark briefly upon a theoretical point of some importance on which the author's views seem open to question; and there are also a few matters connected with the general subject which seem worthy of attention.

Although Professor Gastaldi, of Turin, after a careful study of the Italian Alps, has adopted Professor Ramsay's view of the excavation of alpine lake basins by ice, Sir Charles Lyell is still strongly opposed to that view. He maintains that they have been produced by changes of level in valleys, producing depressions which have been preserved during the glacial epoch by being filled with ice, while at all other times they were either soon filled by *débris*, or their lower barriers were cut down as fast as they were formed. He thus accounts for the fact that

lakes only occur in any abundance in glaciated districts. He further maintains that the erosive power of glaciers, as indicated by the muddy torrent that always issues from them has been overrated, because "the flour of rock" thus produced is due, not solely to the wearing down of the floor of the valley, but, "to a considerable extent," to the grinding up of the stones which fall upon the glacier and are engulfed in its crevasses.

There are doubtless many difficulties in Prof. Ramsay's theory, and much remains to be done to verify it, but it does seem to cover a larger portion of the facts than that now opposed to it. There is no evidence before us to show how much of the glacier mud is respectively due to the two sources above referred to, but the enormous bulk of many of the old moraines, where they have not been destroyed by subsequent denudation, seems amply sufficient to account for the *débris* which falls upon a glacier; while the wide extent of glaciated surfaces, and the manner in which the very hardest upturned strata are often planed off or *moutonnées*, is equally convincing proof that large masses of rock have been ground down by glaciers. The evidence of this is very remarkable also, in the case of the Loess, a deposit which covers an enormous extent of country, and in some parts of the valley of the Rhine reaches a thickness of near 1,000 feet, and which Sir Charles Lyell himself considers to be undoubtedly glacial mud. It is difficult to conceive how such an enormous amount of mud could have been formed except by a grinding power capable of producing most of the effects imputed to it by Prof. Ramsay. It is considered to be one of the most powerful arguments against the ice-erosion theory that no lakes exist in certain valleys which were undoubtedly filled with enormous glaciers; but the answer to this is, that a lake will only be produced when the erosion is considerably greater at one part of the valley than at another, and this inequality may be caused either by unequal hardness of the subjacent rocks or by the piling up of the ice to a greater thickness in certain spots by the convergence of several branch glaciers, as must have been notably the case over the site of Lago Maggiore, which received the icy streams descending from near 100 miles of the loftiest Alps. It must also be remembered, that at such points of convergence the rate of motion of the glacier will be much more rapid than elsewhere, in order to discharge the accumulated ice-streams; and we shall thus have a double cause of increased grinding in such positions. A difficulty of a somewhat similar nature, and which cannot be so easily overcome, besets the unequal-subsidence theory, which can hardly be made to account for the thousands and tens of thousands of lakes so thickly scattered over the lowlands of Northern Europe and America.

It is somewhat remarkable that notwithstanding the numerous researches in post-tertiary caves and gravels in all parts of Europe, no human remains have been discovered which can be proved to be older than those found by Dr. Schmerling more than forty years ago in the caverns near Liège. After many years' labour this gentleman, a skilful anatomist and palæontologist, published, in 1833, a detailed account of his researches, copiously illustrated. It is curious to see, from Sir Charles Lyell's account of this work, how completely its author antici-